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| 10/598,082 | 11/27/2006 | Masahito Osawa | P30537 | 9910 |
| 7055 7590 10/19/2010 GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191 | | | | |
| EXAMINER FOGARTY, CAITLIN ANNE | | | | |
| ART UNIT | | PAPER NUMBER | | |
| 1733 | | | | |
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| 10/19/2010 | | ELECTRONIC | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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**Advisory Action
Before the Filing of an Appeal Brief**

Application No.

10/598,082

Applicant(s)

OSAWA ET AL.

Examiner

CAITLIN FOGARTY

Art Unit

1733

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 08 October 2010 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

- a) ☒ The period for reply expires 3 months from the mailing date of the final rejection.
b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.
Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because
(a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);
(b) ☐ They raise the issue of new matter (see NOTE below);
(c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
(d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicant's reply has overcome the following rejection(s): _____.
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☒ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.
The status of the claim(s) is (or will be) as follows:
Claim(s) allowed: _____.
Claim(s) objected to: _____.
Claim(s) rejected: 1, 4, 9, 12, 16 and 19.
Claim(s) withdrawn from consideration: _____.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because:
See Continuation Sheet.
12. ☐ Note the attached Information Disclosure Statement(s). (PTO/SB/08) Paper No(s). _____.
13. ☐ Other: _____.

/ Roy King/
Supervisory Patent Examiner, Art Unit 1733

/Caitlin Fogarty/
Examiner, Art Unit 1733

Continuation of 11, does NOT place the application in condition for allowance because: the amended claims incorporate the dependent claims into the independent claim and applicant's arguments filed October 8, 2010 in view of the amended claims have been fully considered but they are not persuasive.

Applicant argued that JP '722 is directed to a technique of controlling evaporation of Mg by using Mg-REM of lower melting temperature as a starting material, while the presently claimed subject matter is directed to a technique of preventing the evaporation of Mg by adjusting pressure to be in an appropriate range inside a furnace when melting the alloy and by controlling melting temperature. The instant claimed combination of process steps is not taught or suggested by JP '722 which is directed to a fundamentally different process including its manner of preventing evaporation of Mg. JP '722 does not disclose a second step of adding magnesium starting material comprising Mg or Mg₂Ni to the melt of REM-Ni alloy and keeping a pressure inside the melting furnace at a given level to obtain a melt of Mg-REM-Ni alloy. The Examiner's response is that as discussed in a previous Office Action, [0027]-[0033] of JP '722 teach that the furnace is maintained in a vacuum state. Then, argon gas is introduced into the furnace in order to control evaporation of Mg. JP '722 teaches that an argon pressure of 0.1 MPa (750 torr) is preferred. However, the pressure inside the melting furnace after the addition of the magnesium starting material is a result effective variable in terms of controlling the evaporation of Mg. Therefore, it would have been obvious to one of ordinary skill in the art to optimize the pressure inside the melting furnace after the addition of the magnesium starting material through routine experimentation in order to control the evaporation of Mg to a desired level. See MPEP 2144.05 IIB.

The Examiner attempts to arrive at Applicants' claimed subject matter by contending that JP '722 discloses that it is known in the art to use Mg metal as the magnesium starting material. However, JP '722 teaches that it is not preferable to add Mg metal directly to an elevated temperature molten metal because a large amount of Mg will evaporate. The disclosure of JP '722 teaches away from Applicants' claimed method and specifically discloses problems with adding Mg metal directly to an elevated temperature molten metal and provides its method for avoiding adding a rare earth-magnesium system hardener to a nickel molten metal or a rare earth/nickel series molten metal. The Examiner's response is that as discussed in a previous Office action, JP '722 teaches a method that it believes improves upon the known method of using elemental Mg or Mg₂Ni as a magnesium starting material. JP '722 does not teach away from using either of these as a magnesium starting material, but rather teaches that it is not preferable to use elemental Mg or Mg₂Ni because a large amount of Mg will evaporate. Therefore, the Examiner takes the position that it would have been obvious to one of ordinary skill in the art to use the known magnesium starting material of elemental Mg or Mg₂Ni in the method of JP '722 with the expectation of a large amount of Mg evaporation. Applicant has not demonstrated that the instant invention would produce unexpected results from what is already known in the art which is a large amount of Mg evaporation when either elemental Mg or Mg₂Ni is used as a magnesium starting material.

JP '722 describes that the temperature of the melt of Ni-REM is lowered before Mg starting material (REM-Mg alloy) is added, however, there is no mentioning of the temperature control after Mg starting material is added. Furthermore, there is no suggestion of controlling the inner furnace's pressure. Therefore, the technique in JP '722 cannot prevent the vaporization of Mg after Mg starting material is added. As the evidence, the comparative examples 1 and 2 of JP '722 show that Mg is decreased by 13.5% or more when the same Mg-Ni alloy is used as Mg starting material, as in the instant invention. The Examiner's response is that as discussed in a previous Office Action, JP '722 does not specifically teach the temperature of the melt of the REM-Ni alloy at the addition of the Mg starting material at the second step. However, it would have been obvious to one of ordinary skill in the art that the temperature of the melt of the REM-Ni alloy at the addition of Mg starting material at the second step would be similar to the claimed range in order to maintain the melted state of the REM-Ni alloy as disclosed in JP '722 since the melting point of La, for example, is 921 degC and the melting point of Ni is 1450 degC. Applicant has not demonstrated the criticality of the claimed temperature range and therefore the Examiner maintains this prima facie case of obviousness.

JP '722 does not describe the pressure inside the furnace at the time of melting, but describes in examples melting of the rare earth-Mg system alloy that molten raw material is thrown in a crucible after carrying out full evacuation of the inside of a melting furnace, argon gas is introduced to 750 torr in the furnace for dissolution. That is, JP '722 does not carry out melting under vacuum but under a pressure of 750 torr. The Examiner's response is that as discussed in a previous Office Action, [0027]-[0033] of JP '722 teach that the furnace is maintained in a vacuum state. Then, argon gas is introduced into the furnace in order to control evaporation of Mg. JP '722 teaches that an argon pressure of 0.1 MPa (750 torr) is preferred. However, the pressure inside the melting furnace after the addition of the magnesium starting material is a result effective variable in terms of controlling the evaporation of Mg. Therefore, it would have been obvious to one of ordinary skill in the art to optimize the pressure inside the melting furnace after the addition of the magnesium starting material through routine experimentation in order to control the evaporation of Mg to a desired level. See MPEP 2144.05 IIB. Furthermore, Fig. 1 of the instant specification does not clearly show that a molten bath temperature not less than 1500 degC cannot prevent transpiration of Mg. Fig. 1 only displays the relationship between pressure inside the furnace and temperature of the melt. Therefore, Applicant has not demonstrated the criticality of the pressure inside the melting furnace.